CLAIMS

1. An epoxy resin composition for carbon-fiber-reinforced composite materials, comprising the following components [A], [B] and [C]:

[A] epoxy resin,

[B] amine curing agent, and

[C] phosphorus compound,

wherein the concentration of the component [C] is 0.2 to 15% by weight in terms of phosphorus atom concentration.

2. The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, characterized in that the viscosity of the composition is 10 to 700 Pa·s at 60°C.

3. The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1 or 2, characterized by comprising red phosphorus as the component [C].

4. The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 3, characterized in that the red phosphorus is coated with a metal hydroxide and/or a resin.

5. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 4, characterized in that the amine curing agent, as the component [B], is dicyandiamide.

6. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 5, characterized in that the amine curing agent, as the component [B], is a latent curing agent that is activated at 70 to 125°C.

7. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 6, characterized in that the amine curing agent, as the component [B], is an aromatic polyamine.

8. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 4, further comprising a curing accelerator as an component [D].

9. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 8, characterized in that the curing accelerator, as the component [D], is a compound that has 2 or more urea bonds per molecule.

10. The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 8 or 9, characterized in that the curing accelerator, as the component [D], is 1,1'-4(methyl-m-phenylene)bis(3,3-dimethylurea) and/or 4,4'-methylene bis(phenyldimethylurea).

11. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 10, characterized in that the specific gravity of the composition is 1.35 or lower.

12. The epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 11, characterized in that the composition can be cured within 30 minutes at 150°C.

13. A prepreg, prepared by impregnating carbon fiber with the epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 12.

14. The prepreg according to claim 13, characterized in that the fiber volume content of a prepreg is 30 to 95%.

15. A fiber-reinforced composite sheet, characterized by comprising a cured resin prepared by curing the epoxy resin composition for carbon-fiber-reinforced composite materials according to any of claims 1 to 12; and carbon fiber.

16. A fiber-reinforced composite sheet, prepared by curing a prepreg according to either claim 13 or 14.

17. A carbon-fiber-reinforced composite sheet, characterized in that the thickness of the sheet is 0.05 to 2.0 mm, the flame retardance is UL-94 V-1 or V-0, and the phosphorus atom concentration in the entire composite material is 0.03 to 12% by weight.

18. An integrated molding, in which a member (I), which comprises a fiber-reinforced composite sheet comprising (a) continuous reinforcing fiber, (b) a matrix resin comprising a thermosetting resin as a major component and (c) a flame-retardant, is joined with another member (II), characterized in that the flame retardance in accordance with UL-94 of the member (I) is V-1 or V-0 for test pieces having a substantial thickness of the member (I).

19. The integrated molding according to claim 18, wherein the glass transition temperature Tg of (b) the matrix resin comprising a thermosetting resin as a major component satisfies the following equation: $Tmax - Tg \leq 50$.

20. The integrated molding according to claim 19, characterized in that (c) the flame-retardant comprises one or more flame-retardants selected from the group consisting of phosphorus, nitrogen and silicon flame-retardants.

21. The integrated molding according to any of claims 18 to 20, characterized in that (c) the flame-retardant is a phosphorus flame-retardant that comprises phosphorus or a

phosphorus compound at a concentration of 0.03 to 12% by weight in terms of phosphorus atom concentration.

22. The integrated molding according to either claim 20 or 21, characterized in that (c) the flame-retardant is red phosphorus.

23. The integrated molding according to claim 22, characterized in that the surface of the red phosphorus is coated with a metal hydroxide and/or a resin.

24. The integrated molding according to any of claims 18 to 23, characterized in that the substantial thickness of the member (I) is 0.05 to 2.0 mm.

25. The integrated molding according to any of claims 18 to 23, characterized in that the substantial thickness of the member (I) is 0.1 to 1.0 mm.

26. The integrated molding according to any of claims 18 to 25, characterized in that the substantial thickness of the member (I) is 0.2 to 0.8 mm.

27. A fiber-reinforced composite sheet (A), comprising (a) continuous reinforcing fiber, (b) a matrix resin comprising a thermosetting resin as a major component and (c) a flame-retardant, characterized in that at least part of the sheet surface has (d) a layer comprising a thermoplastic resin as a major component and the flame retardance in accordance with UL-94 of the sheet is V-1 or V-0 for test pieces having a substantial thickness of the sheet.

28. The fiber-reinforced composite sheet according to claim 27, wherein the glass transition temperature Tg of (b) the matrix resin comprising a thermosetting resin as a major component satisfies the following equation: $Tmax - Tg \leq 50$.

29. The fiber-reinforced composite sheet according to claim 27 or 28, characterized in that (c) the flame-retardant comprises one or more flame-retardants selected from the group consisting of phosphorus, nitrogen and silicon flame-retardants.

30. The fiber-reinforced composite sheet according to any of claims 27 to 29, characterized in that (c) the flame-retardant is a phosphorus flame-retardant that comprises phosphorus or a phosphorus compound at a concentration of 0.03 to 12% by weight in terms of phosphorus atom concentration.

31. The fiber-reinforced composite sheet according to any of claims 27 to 30, characterized in that (c) the flame-retardant is red phosphorus.

32. The fiber-reinforced composite sheet according to claim 31, characterized in that the surface of the red phosphorus is coated with a metal hydroxide and/or a resin.

33. The fiber-reinforced composite sheet according to any of claims 27 to 32, characterized in that (b) the matrix resin composition comprising a thermosetting resin as a major component and (d) the thermoplastic resin layer form unevenness at their interface.

34. The fiber-reinforced composite sheet according to claim 33, wherein of (a) the continuous reinforcing fiber, a plurality of reinforcing fiber groups on (d) the layer side comprising a thermoplastic resin as a major component are embedded in (d) the layer comprising a thermoplastic resin as a major component.

35. The fiber-reinforced composite sheet according to either claim 33 or 34, wherein the thickness of (d) the layer comprising a thermoplastic resin as a major component is 10 to 100 μm.

36. The fiber-reinforced composite sheet according to any of claims 33 to 35, wherein the bonding strength in accordance with ISO4587 of the sheet is 6 MPa or higher at 25°C for test pieces prepared using the fiber-reinforced composite sheet (A) by the process described in the present specification.

37. The fiber-reinforced composite sheet according to any of claims 33 to 36, characterized in that the flame retardance in accordance with UL-94 of the sheet is V-1 or V-0 for test pieces having a thickness of 0.05 to 2.0 mm.

38. The fiber-reinforced composite sheet according to any of claims 33 to 36, characterized in that the flame retardance in accordance with UL-94 of the sheet is V-1 or V-0 for test pieces having a thickness of 0.1 to 1.0 mm.

39. The fiber-reinforced composite sheet according to any of claims 33 to 36, characterized in that the flame retardance in accordance with UL-94 of the sheet is V-1 or V-0 for test pieces having a thickness of 0.2 to 0.8 mm.

40. An integrated molding, characterized in that the fiber-reinforced composite sheet according to any of claims 27 to 39 is joined with another member (II).

41. The integrated molding according to claim 40, characterized in that the fiber-reinforced composite sheet (A) is joined with another member (II) via (d) the thermoplastic resin layer.

42. The integrated molding according to either claim 40 or 41, characterized in that the bonding strength in the vertical direction of the joining portion between the fiber-reinforced composite sheet (A) and another member (II) is 6 MPa or higher at 25°C.

43. The integrated molding according to any of claims 18 to 26 and claims 40 to 42, characterized in that the another member (II) is made up of one or more materials selected

from the group consisting of the same material as the member (I) itself, thermoplastic resin compositions and metallic materials.

44. The integrated molding according to any of claims 18 to 26 and claims 40 to 43, characterized in that the member (II) is made up of a red phosphorus-containing nylon compound and the flame retardance in accordance with UL-94 of the member (II) is V-0 for test pieces having the substantial thickness of the member (II).

45. The integrated molding according to any of claims 18 to 26 and claims 40 to 44, characterized in that the member (II) is made up of a thermoplastic resin composition comprising reinforcing fiber.

46. The integrated molding according to any of claims 18 to 26 and claims 40 to 45, characterized in that the continuous reinforcing fiber is carbon fiber.

47. The integrated molding according to any of claims 18 to 26 and claims 40 to 45, characterized in that the thermoplastic resin of (b) the matrix resin composition comprising a thermoplastic resin as a major component is an epoxy resin.

48. A casing for electrical/electronic equipment comprising the integrated molding according to any of claims 18 to 26 and claims 40 to 47.

49. The casing for electrical/electronic equipment according to claim 48, characterized in that the electrical/electronic equipment is one or more kinds of equipment selected from the group consisting of note-type personal computers, cellular phones, mobile information terminals, digital cameras, acoustic equipment and electronic storage media.